SEQUENCE LISTING

<110> KULOMAA, MARKKU SAKARI
NORDLUND, HENRI RAINER
LAITINEN, OLLI HEIKKI
HYTONEN, VESA PEKKA

<120> IMPROVED MUTANTS OF BIOTIN BINDING PROTEIN

<130> 3502-1073

<140> 10/525,409
<141> 2005-11-07

<150> PCT/FI03/00619
<151> 2003-08-22

<150> FI 20021518
<151> 2002-08-23

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<170> PatentIn Ver. 3.3

<210> 1
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 1
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<212> DNA
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<223> Description of Artificial Sequence: Synthetic primer

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<210> 3
<211> 152
<212> PRT
<213> Gallus gallus

<400> 3
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1 5 10 15

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Ala Leu Val Ala Pro Gly Leu Ser Ala Arg Lys Cys Ser Leu Thr Gly
            20                  25                  30

Lys Trp Thr Asn Asp Leu Gly Ser Asn Met Thr Ile Gly Ala Val Asn
        35                  40                  45

Ser Arg Gly Glu Phe Thr Gly Thr Tyr Ile Thr Ala Val Thr Ala Thr
    50                  55                  60

Ser Asn Glu Ile Lys Glu Ser Pro Leu His Gly Thr Gln Asn Thr Ile
65                  70                  75                  80

Asn Lys Arg Thr Gln Pro Thr Phe Gly Phe Thr Val Asn Trp Lys Phe
                85                  90                  95

Ser Glu Ser Thr Thr Val Phe Thr Gly Gln Cys Phe Ile Asp Arg Asn
            100                 105                 110

Gly Lys Glu Val Leu Lys Thr Met Trp Leu Leu Arg Ser Ser Val Asn
        115                 120                 125

Asp Ile Gly Asp Asp Trp Lys Ala Thr Arg Val Gly Ile Asn Ile Phe
    130                 135                 140

Thr Arg Leu Arg Thr Gln Lys Glu
145                 150
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<210> 4
<211> 150
<212> PRT
<213> Gallus gallus

<400> 4

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Ala Leu Val Ala Pro Gly Leu Ser Ala Arg Lys Cys Ser Leu Thr Gly
            20                  25                  30

Lys Trp Asp Asn Asp Leu Gly Ser Ile Met Thr Ile Gly Ala Val Asn
        35                  40                  45

Asp Asn Gly Glu Phe Asn Gly Thr Tyr Ile Thr Ala Val Ala Asp Asn
    50                  55                  60

Pro Gly Asn Ile Thr Arg Ser Pro Leu Leu Gly Ile Gln His Lys Arg
65                  70                  75                  80

Ala Cys Gln Pro Thr Phe Gly Phe Thr Val His Trp Asn Phe Ser Glu
                85                  90                  95

Ser Thr Ser Val Phe Val Gly Gln Cys Phe Val Asp Lys Ser Gly Lys
            100                 105                 110

Glu Val Leu Lys Thr Lys Trp Leu Gln Arg Leu Ala Val Asp Asp Ile
        115                 120                 125
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Ser Asp Asp Trp Lys Ala Thr Arg Val Gly Asn Asn Asp Phe Thr Arg
    130                 135                 140

Gln Arg Thr Val Glu Glu
145                 150


<210> 5
<211> 150
<212> PRT
<213> Gallus gallus

<400> 5
Met Val His Ala Thr Ser Pro Leu Leu Leu Leu Leu Leu Leu Ser Leu
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Ala Leu Val Ala Pro Ser Leu Ser Ala Arg Lys Cys Ser Leu Thr Gly
             20                  25                  30

Glu Trp Asp Asn Asp Leu Gly Ser Ile Met Thr Ile Gly Ala Val Asn
         35                  40                  45

Asp Asn Gly Glu Phe Asp Gly Thr Tyr Ile Thr Ala Val Ala Asp Asn
     50                  55                  60

Pro Gly Asn Ile Thr Leu Ser Pro Leu Leu Gly Ile Gln His Lys Arg
 65                  70                  75                  80

Ala Ser Gln Pro Thr Phe Gly Phe Thr Val His Trp Asn Phe Ser Glu
                 85                  90                  95

Ser Thr Ser Val Phe Val Gly Gln Cys Phe Val Asp Arg Ser Gly Lys
            100                 105                 110

Glu Val Leu Lys Thr Lys Trp Leu Gln Arg Leu Ala Val Asp Asp Ile
        115                 120                 125

Ser Asp Asp Trp Ile Ala Thr Arg Val Gly Asn Asn Asp Phe Thr Arg
    130                 135                 140

Gln His Thr Val Glu Glu
145                 150


<210> 6
<211> 150
<212> PRT
<213> Gallus gallus

<400> 6
Met Val His Thr Thr Ser Pro Leu Leu Leu Leu Leu Leu Leu Ser Leu
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Ala Leu Val Ala Pro Ser Leu Ser Ala Arg Lys Cys Ser Leu Thr Gly
             20                  25                  30
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Lys Trp Thr Asn Asn Leu Gly Ser Ile Met Thr Ile Arg Ala Val Asn
         35                  40                  45

Ser Arg Gly Glu Phe Ala Gly Thr Tyr Leu Thr Ala Val Ala Asp Asn
     50                  55                  60

Pro Gly Asn Ile Lys Leu Ser Pro Leu Leu Gly Ile Gln His Lys Arg
 65                  70                  75                  80

Ala Cys Gln Pro Thr Phe Gly Phe Thr Val His Trp Asn Phe Ser Glu
                 85                  90                  95

Ser Thr Ser Val Phe Val Gly Gln Cys Phe Ile Asp Arg Ser Gly Lys
            100                 105                 110

Glu Val Leu Lys Thr Lys Trp Leu Gln Arg Leu Ala Val Asp Asp Ile
        115                 120                 125

Ser Asp Asp Trp Lys Ala Thr Arg Val Gly Tyr Asn Asn Phe Thr Arg
    130                 135                 140

Gln Arg Thr Val Glu Glu
145                 150
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<210> 7
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<212> PRT
<213> Gallus gallus

<400> 7

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Ala Leu Val Ala Pro Ser Leu Ser Ala Arg Lys Cys Ser Leu Thr Gly
            20                  25                  30

Lys Trp Thr Asn Asn Leu Gly Ser Ile Met Thr Ile Arg Ala Val Asn
         35                  40                  45

Ser Arg Gly Glu Phe Thr Gly Thr Tyr Leu Thr Ala Val Ala Asp Asn
     50                  55                  60

Pro Gly Asn Ile Thr Leu Ser Pro Leu Leu Gly Ile Gln His Lys Arg
 65                  70                  75                  80

Ala Ser Gln Pro Thr Phe Gly Phe Thr Val His Trp Asn Phe Ser Glu
                 85                  90                  95

Ser Thr Thr Val Phe Thr Gly Gln Cys Phe Ile Asp Arg Asn Gly Lys
            100                 105                 110

Glu Val Leu Lys Thr Met Trp Leu Leu Arg Ser Ser Val Asn Asp Ile
        115                 120                 125

Ser Tyr Asp Trp Lys Ala Thr Arg Val Gly Tyr Asn Asn Phe Thr Arg
    130                 135                 140
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Leu Cys Thr Val Glu Glu
145 150

<210> 8
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<212> PRT
<213> Gallus gallus

<400> 8
Met Val His Ala Thr Ser Pro Leu Leu Leu Leu Leu Leu Leu Ser Leu
1 5 10 15

Ala Leu Val Ala Pro Gly Leu Ser Ala Arg Lys Cys Ser Leu Thr Gly
20 25 30

Glu Trp Asp Asn Asn Leu Gly Ser Ile Met Thr Ile Gly Ala Val Asn
35 40 45

Asp Asn Gly Glu Phe Asn Gly Thr Tyr Ile Thr Ala Val Ala Asp Asn
50 55 60

Pro Gly Asn Ile Lys Leu Ser Pro Leu Leu Gly Ile Gln His Lys Arg
65 70 75 80

Ala Cys Gln Pro Thr Phe Gly Phe Thr Val His Trp Asn Phe Ser Glu
85 90 95

Ser Thr Ser Val Phe Val Gly Gln Cys Phe Val Asp Arg Ser Gly Lys
100 105 110

Glu Val Leu Lys Thr Lys Trp Leu Gln Arg Leu Ala Val Asp Asp Ile
115 120 125

Ser Asp Asp Trp Lys Ala Thr Arg Val Gly Tyr Asn Asn Phe Thr Arg
130 135 140

Gln Arg Thr Val Glu Glu
145 150

<210> 9
<211> 150
<212> PRT
<213> Gallus gallus

<400> 9
Met Val His Ala Thr Ser Pro Leu Leu Leu Leu Leu Leu Leu Ser Leu
1 5 10 15

Ala Leu Val Ala Pro Gly Leu Ser Ala Arg Lys Cys Ser Leu Thr Gly
20 25 30

Glu Trp Asp Asn Asn Leu Gly Ser Ile Met Thr Ile Gly Ala Val Asn
35 40 45

Asp Asn Gly Glu Phe Asn Gly Thr Tyr Ile Thr Ala Val Ala Asp Asn
50 55 60

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Pro Gly Asn Ile Lys Leu Ser Pro Leu Leu Gly Ile Gln His Lys Arg
 65                  70                  75                  80

Ala Cys Gln Pro Thr Phe Gly Phe Thr Val His Trp Asn Phe Ser Glu
                85                  90                  95

Ser Thr Ser Val Phe Val Gly Gln Cys Phe Ile Asp Arg Ser Gly Lys
            100                 105                 110

Glu Val Leu Lys Thr Lys Trp Leu Gln Arg Leu Ala Val Asp Asp Ile
        115                 120                 125

Ser Asp Asp Trp Lys Ala Thr Arg Val Gly Tyr Asn Asn Phe Thr Arg
    130                 135                 140

Gln Arg Thr Val Glu Glu
145                 150
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<210> 10
<211> 128
<212> PRT
<213> Gallus gallus

<400> 10

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Ala Arg Lys Cys Ser Leu Thr Gly Lys Trp Thr Asn Asp Leu Gly Ser
  1               5                  10                  15

Asn Met Thr Ile Gly Ala Val Asn Ser Arg Gly Glu Phe Thr Gly Thr
            20                  25                  30

Tyr Thr Thr Ala Val Thr Ala Thr Ser Asn Glu Ile Lys Glu Ser Pro
        35                  40                  45

Leu His Gly Thr Glu Asn Thr Ile Asn Lys Arg Thr Gln Pro Thr Phe
    50                  55                  60

Gly Phe Thr Val Asn Trp Lys Phe Ser Glu Ser Thr Thr Val Phe Thr
 65                  70                  75                  80

Gly Gln Cys Phe Ile Asp Arg Asn Gly Lys Glu Val Leu Lys Thr Met
                85                  90                  95

Trp Leu Leu Arg Ser Ser Val Asn Asp Ile Gly Asp Asp Trp Lys Ala
            100                 105                 110

Thr Arg Val Gly Ile Asn Ile Phe Thr Arg Leu Arg Thr Gln Lys Glu
        115                 120                 125
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<210> 11
<211> 128
<212> PRT
<213> Gallus gallus

<400> 11

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Ala Arg Lys Cys Ser Leu Thr Gly Lys Trp Thr Asn Asn Leu Gly Ser
 1               5                  10                  15

Ile Met Thr Ile Arg Ala Val Asn Ser Arg Gly Glu Phe Thr Gly Thr
            20                  25                  30

Tyr Leu Thr Ala Val Ala Asp Asn Pro Gly Asn Ile Thr Leu Ser Pro
        35                  40                  45

Leu Leu Gly Ile Gln His Thr Ile Lys Arg Ala Ser Gln Pro Thr Phe
    50                  55                  60

Gly Phe Thr Val His Trp Asn Phe Ser Glu Ser Thr Thr Val Phe Thr
65                  70                  75                  80

Gly Gln Cys Phe Ile Asp Arg Asn Gly Lys Glu Val Leu Lys Thr Met
                85                  90                  95

Trp Leu Leu Arg Ser Ser Val Asn Asp Ile Ser Tyr Asp Trp Lys Ala
            100                 105                 110

Thr Arg Val Gly Tyr Asn Asn Phe Thr Arg Leu Cys Thr Val Glu Glu
        115                 120                 125
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